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# (12) United States Patent Ferry

## (54) APPARATUS AND ITS ARRANGEMENT WITH DUCT TO DETERMINE FLOWABLE MEDIUM PARAMETERS

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CPC .............. *G01N 27/4073* (2013.01); *G01K 13/02* (2013.01); *G01N 33/0004* (2013.01)

#### (58) Field of Classification Search

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#### (57) ABSTRACT

An apparatus is mountable to a duct having a cross-section, for determining parameters of a flowable medium flowing through the duct. The apparatus includes a mounting attachment having a conduit member, and at least one combination of multiple sensing members configured to the conduit member. The conduit member may be disposed entirely within the duct such that the multiple sensing members are located within the duct establishing direct contact with the flowable medium. The multiple sensing members include oxygen and temperature sensing elements respectively, to determine parameter such as oxygen level in the flowable medium, and temperature of the flowable medium. Several such apparatus may be mounted in the duct across the cross-section to define a grid to determine said parameter at various locations across the cross-section.

#### 20 Claims, 6 Drawing Sheets

